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ABSTRACT

The generic skills studies in Canada have as their objectives the formulation of generic skills, the identification of their uses for certain occupational groups, and the preparation of specifications for instructional modules in an attempt to provide greater flexibility to workers, employers, and vocational training programs. Another objective of the studies is to determine skill transferability between occupations. Types of generic skills examined include academic skills, reasoning skills, interpersonal skills, manipulative skills, and science skills. Workers have been surveyed in 49 occupations; supervisors have been surveyed in 28 occupations. Occupational families surveyed include clerical and administration; technology, architecture and engineering; medicine and health; sales; service; machining and related occupations; fabricating assembly and repair; construction; motor transport; and farmers. Data from these surveys have been gathered into charts of generic skills in communications, mathematics, science, and reasoning according to occupational groups such as writing on forms, memos, and technical reports for each of the occupational families. Core clusters and non-core skills for these occupations were also discerned and listed, and chart of generic skill transferability between occupational families was created. (KC)

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GENERIC SKILLS

to job performance

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ACKNOWLEDGEMENT

Generic skills studies have been carried on by Arthur De W. Smith for a number of years, first at the Training Research and Development Station, in Prince Albert, Saskatchewan, and now at the Occupational and Career Analysis and Development Branch in Ottawa. Generic Skills: Keys to Job Performance is his latest report on generic communication, mathematics, science and reasoning skills and skill transferability.

GENERIC SKILLS is a project of the Advanced Development Division of the Occupational and Career Analysis and Development Branch.

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GENERIC SKILLS

Generic skills are those job behaviours which are actively used in work performance, which are transferable from one job or occupation to another and which are needed for promotion to supervisory status. By this definition most communication, simple arithmetic and reasoning skills are highly generic, while advanced algebra and science skills are not.

Simply stated, the generic approach is an attempt to examine the communality of skills rather than the uniqueness of occupations. It is an attempt to determine how much Electricians, Carpenters and Secretaries are alike in skill usage. It is also an attempt to discover which skills, commonly taught, are rarely used in job performance.

THE NEED

It is increasingly recognized that the rate of technological change, as well as the fluctuations of specific labour markets, requires a degree of training and flexibility possessed by relatively very few workers. The problem lies not in a resistance to change on the part of the labour force, but rather on the content of the curriculum which trains a person for a specific job rather than for a family of jobs, and the nature of the credentials for employment which fail to recognize, in this age of specialization, that many skills are transferable to a variety of occupations. A second problem with the curriculum (and this applies particularly to adult training programs) is that it prepares people for entry level jobs and provides little assistance for the person who wants to learn to perform or is promoted to a more skilled job or to a supervisory position.

Rather oddly, while skill training has been developed and carried out as if every occupation or job had unique skill requirements, academic pre-occupational training has proceeded as if every occupation had the same academic requirements. Everyone knows, for example, that Secretaries need good communications skills, and Grade 12 or the equivalent is therefore prescribed as a prerequisite for those taking secretarial training. But Grade 12 automatically includes many topics which Secretaries do not need, such as quadratics, analytic geometry and chemistry formulas.

EXAMPLES OF GENERIC SKILLS

1. Academic skills: multiplying whole numbers and reading to determine job requirements.
2. Reasoning skills: scheduling work and diagnosing work problems.
3. Interpersonal skills: giving and receiving rewards and discipline.
4. Manipulative skills: hand/eye coordination and using proper body posture for lifting and carrying.
5. Science skills: using scientific method to solve problems.

THE STUDY

A continuing study by the Occupational and Career Analysis and Development Branch has as its objective to formulate generic skills to identify their uses for certain occupational groups, and to prepare specifications for instructional modules in an attempt to provide greater flexibility to workers, employers and vocational training programs. Another important objective of the study is to determine skill transferability between occupations.

METHODOLOGY OF STUDY

Separate studies have been sequentially carried out in the skill areas of mathematics, communications, reasoning, interpersonal relations and science. Further studies are to be done in these areas and in psychomotor skills. Although the studies are separate, the results are integrated because many of the generic skills actually encompass two or more of these areas.

Within each area the following methodology is being used:

Taxonomy of Skills: *To develop a classification system of possible generic skills identified through analysis and synthesis of educational and training curricula, reports of occupational analyses, the Canadian Classification and Dictionary of Occupations, other relevant literature and staff knowledge of the occupations.*

Data Collection Instruments: *To develop, pilot test and refine as necessary, an instrument or instruments which, through interviewing or other techniques, can be used to collect data from workers and their immediate supervisors to determine skills which are actually used within each occupation analyzed.*

Data Collection: *To collect data on skill use from a variety of occupations encompassing a cross section of employers in urban and rural areas. Employers are selected from a spectrum of large, small, specialized and government employers.*

Data Analysis: *To determine generic skills requirements for each occupation surveyed, the utility of the data collection instruments and processes, occupational and skill clusters, comparisons of skill requirements in different geographical locations, and where appropriate, anomalies between job requirements and the occupational training course data.*

Develop Specifications: *To prepare specifications for the development of prescriptive training modules which will facilitate the achievement of the specific generic skills needed by adults for chosen occupations, allow recognition of skills already held, provide for continuous intake and exit of students and provide means by which adults may acquire additional skills at a time convenient to career advancement.*

Dissemination: *To prepare and deliver oral and written reports covering the rationale and theory, methodology, data collection, analysis of findings, and the development specifications to concerned federal, provincial and educational institution officials.*

DATA COLLECTION

Workers have been surveyed in 49 occupations and supervisors as workers have been surveyed in 28 occupations. These surveys were performed with the active collaboration of provincial departments of education. The science survey was carried out by St. Lawrence College of Applied Arts and Technology, through the Ontario Ministry of Colleges and Universities, with the financial and consultative support of the Department of Manpower and Immigration.

Where data have been obtained from both workers and the workers' immediate supervisors, the agreement on the skill requirements has been remarkably high. For example, in survey number 1 in which 340 workers and 340 supervisors responded to 115 questions, the coefficient of correlation between workers' and supervisors' data exceeded 0.95. It appears that skill data may reliably be obtained from either workers or the workers' immediate supervisors.

The assistance of several collaborating provincial departments of education and of a number of co-operating provincial training institutions is gratefully appreciated.

Further studies to examine the manipulation skills are commencing.

SURVEYS

	1973 Survey 1	1973 Survey 2	1974 Survey 3	1976 Survey 4
No. of Occupations	27	37	30	77
Workers Interviewed	340	490	20	90
Supervisors Interviewed	340	480	280	680
Skills Surveyed :				
Math and Comm.	Yes	Yes	Yes	No
Interpersonal	No	Yes	Yes	No
Reasoning	No	Partly	Yes	No
Science	No	No	No	Yes
Survey Locations	4 (Sask.)	9 (Can.)	6 (Can.)	6 (Ont.)
Skill Items Examined	115	221	204	698

OCCUPATIONS SURVEYED

CLERICAL AND ADMINISTRATIVE

1179-182 Administrative Officer
4110-110 Supervisor, Stenos & Typists
4111-110 Secretary
4111-118 Stenographer
4113-124 Clerk-Typist
4130-110 Supervisor, Bookkeepers and Accounting Clerks
4130-118 Supervisor, Insurance, Bank and other Finance Clerks
4131-114 Bookkeeper
4131-134 Accounting Clerk
4131-142 Bookkeeping Clerk
4130-114 Supervisor, Cashiers
4133-118 Cashier
4150-118 Supervisor, Stock Clerks
4153-122 Receiving Clerk
4155-126 Storekeeper (formerly called Storeman)

TECHNOLOGISTS, ARCHITECTURAL AND ENGINEERING

2161-122 Surveyor Helper
2163-110 Draughtsman/woman, General (formerly called Draughtsman, General)
2165-114 Architectural Technologist

MEDICINE AND HEALTH

3131-130 Nurse, General Duty
3134-110 Nursing Assistant
3135-110 Nurse Aide
3156-134 Medical Lab. Tech.

SALES

5130-122 Managing Supervisor, Wholesale Establishment
5130-114 Managing Supervisor, Retail Store
5130-199 Other Supervisors, Commodity Sales Occupations
5135-154 Salesperson, Hardware
5137-114 Sales Clerk
5133-Misc. Commercial Travellers
5171-118 Sales Agent, Insurance (formerly called Salesman, Insurance)
5190-110 Supervisor, Route Drivers (formerly called Supervisor, Driver Salesman)
5193-118 Route Driver (formerly called Driver Salesman)

SERVICE

6112-Misc. Supervisors, Police Officers
6113-110 Supervisor, Policemen and Investigators, Private
6112-158 Police Officer (formerly called Policeman)
6120-118 Supervisor, Bartenders
6120-122 Supervisor, Chefs & Cooks
6121-114 Cook
6120-126 Supervisor, Food and Beverage Services Occupations (formerly called Supervisor, Waiters, Hostesses and Stewards, Food & Beverage)
6125-110 Waiter/Waitress, Formal Service (formerly called Waiter, Formal Service)
6125-126 Waiter/Waitress (formerly called Waiter)
6143-114 Barber
6143-118 Cosmetologist
6191-110 Janitor
8215-114 Meat Cutter

MACHINING AND RELATED

8310-114	Foreman/Woman, Machinists & Machine Tool Occs.
8313-154	Machinist, General
8330-126	Foreman/Woman, Welding & Flame Cutting Occs.
8335-126	Welder, Combination
8333-118	Sheet Metal Worker

FABRICATING ASSEMBLY AND REPAIR

8530-134	Foreman/Woman, Radio & Television Servicer (formerly called Foreman/Woman, Radio & Television Repair)
8537-Misc.	Television and Radio Servicer (formerly called Television and Radio Repair Servicemen)
8550-134	Foreman/Woman, Sewing Machine Operators
8580-122	Foreman/Woman, Motor Vehicle Mechanics & Repair Workers
8581-110	Motor Vehicle Mechanics
8584-378	Construction Equipment Mechanic
8580-199	Other Foreman/Woman, Mechanics & Repair Workers
8589-299	Other Mechanics & Repair Workers
8510-199	Other Foreman/Woman, Fabricating, and Assembling Occupations, Metal Products
8529-222	Product Assembler Metal
8584-162	Packaging Machine Mechanic

CONSTRUCTION

8710-110	Foreman/Woman, Excavating, Grading Related Occupations
8711-110	Heavy-Duty Equipment Operator (formerly called Heavy Equipment Operator)
8730-110	Foreman/Woman, Const. Electricians and Repair Workers
8733-122	Electrician
8735-138	Line Installer – Repairer (formerly called Lineman)
8780-114	Foreman/Woman, Carpenter Related Workers
8781-110	Carpenter
3780-138	Foreman/Woman, Painters, Paperhangers & Related Workers
8785-110	Painter and Decorator (formerly called Painter)
8791-114	Plumber
8780-154	Foreman/Woman, Labourers and other Elemental Workers
8798-114	Const. Labourer
8799-194	Maintenance Worker, Building (formerly called Maintenance Man, Bldg.)

MOTOR TRANSPORT

9170-118	Foreman/Woman, Truck Drivers
9171/73/75	Drivers
9175-122	Truck Driver, Tractor Trailer

FARMERS

7111-110	Farmer, General

GENERIC COMMUNICATION SKILLS

The chart on the facing page summarizes the communication requirements for 10 occupaticnal families and for 28 supervisory occupations. The colour code indicates the ratio of occupations in which the skill is used by the workers (e.g., one out of eight clerical occupations needing the skill of preparing technical reports is indicated by a yellow code).

Reading at work includes business forms, notes, letters, memos, charts, tables, technical and reference books. Workers are expected to read for facts and be able to decide how what they have read relates to their job. Good literature and poetry comprehension skills are not a common occupational requirement. Issues such as the writer's tone, style, mood, imagery, metric patterns and the other skills normally associated with evaluative comprehension are rarely required in these types of jobs.

Writing at work is characterized by the completion of business forms and terse factual memos, letters or reports. Employers rarely want or allow workers to use the skills of creative essay type writings.

Good and effective listening behaviours are a pervasive work requirement. In a vast number of occupations oral communication is the normal mode and workers are expected to listen attentively; to remember and act upon oral conversations; and to display verbal and non-verbal attending behaviours. Attending behaviours include appropriate use of eye contact; gestures; paraphrasing to confirm understanding; distinguishing between fact and opinion; and checking assumptions by asking closed questions.

The abilities to carry out task-oriented conversation; to express one's own point of view; to seek information by asking what, when, how, where and why questions; to pass on task directions and to communicate effectively in group discussions are common requirements at work. Most workers are required to instruct fellow workers by "telling" and "showing" them how to carry out work tasks. However, oratorical skills are usually not rewarded in the work area.

The ability to communicate effectively is probably one of the most significant reasons why some workers are selected and promoted to supervisory status.

GENERIC COMMUNICATIONS

SKILL NEED

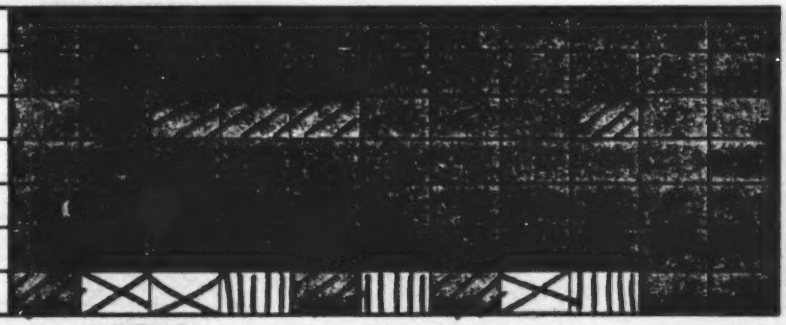
- Nil
- Few
- Many
- Most/All

OCCUPATIONAL FAMILIES

Clerical | Engineering Technologists | Medical/Health | Sales | Service | Machining | Fabricating, Assembly and Repair | Construction | Motor Transport | Farmers | Supervisors

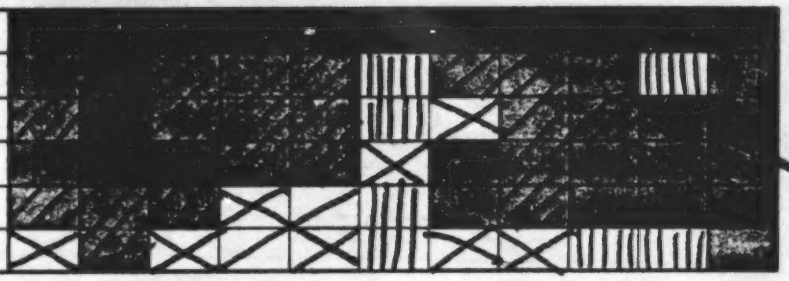
READING

- Read: Forms
- Notes/Letters
- Charts/Tables
- Books/Manuals
- Literal Comprehension
- Interpretative Comprehension
- Evaluative Comprehension



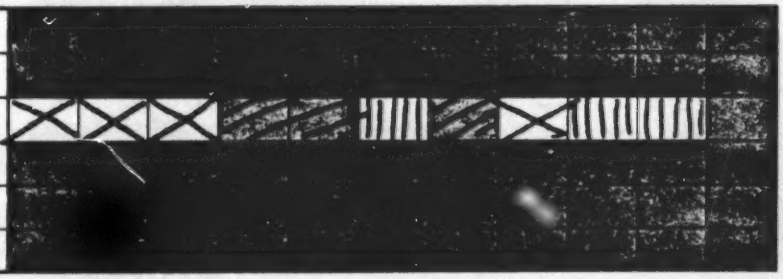
WRITING

- On Forms
- Memos
- Letters
- Info. Reports
- Recommendation Reports
- Technical Reports



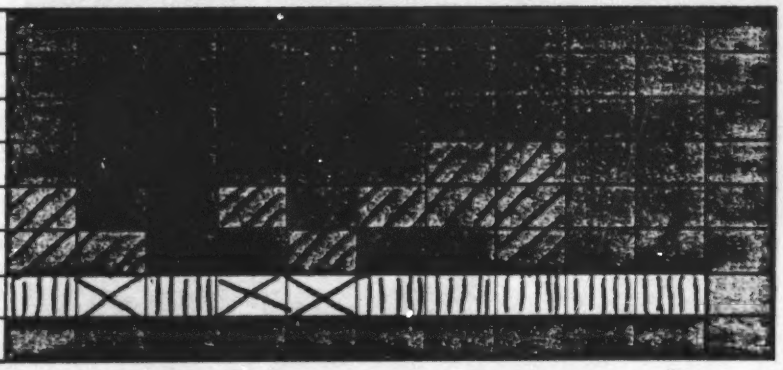
LISTENING

- Literal Comprehension
- Interpretative Comprehension
- Evaluative Comprehension
- Physical Attending
- Cognitive Attending
- Reactive Attending



CONVERSING

- Elementary Conversation
- Task Conversation
- Express Point of View
- Personable Conversation
- Persuasive Conversation
- Group Discussion
- Oral Presentations
- Instructional Talks



GENERIC MATHEMATICS SKILLS

The chart on the facing page summarizes the mathematics requirements for 10 occupational families and for 28 supervisory occupations. The colour code indicates the ratio of occupations in which the skill is used by the workers (e.g., two out of eight clerical occupations needing the skills of ratio and proportion is indicated by a yellow code).

Elementary arithmetic computational and measurement skills are common everyday requirements for most workers. Most of the computations are directly related to measurements which the workers have made or to measurement data being processed and are characterized by the use of repetitive operations. Workers are expected to verify the accuracy of their measurements and their calculations. Charts, tables and common formulas are frequently supplied by the employers. Increasingly, employers are providing aids such as calculators to promote productivity. Employers are not particularly interested in the language of mathematics (workers may add fractions but are not required to know the meaning of words such as numerator and denominator); in number sets; nor in many of the other concepts introduced in "new math". Mathematics at work is always measurement-related, and problems such as adding $\frac{1}{5} + \frac{2}{3} + \frac{3}{8}$ do not exist. The denominators relate to measurements, such as quarters, eighths, sixteenths or thousandths and five-thousandths.

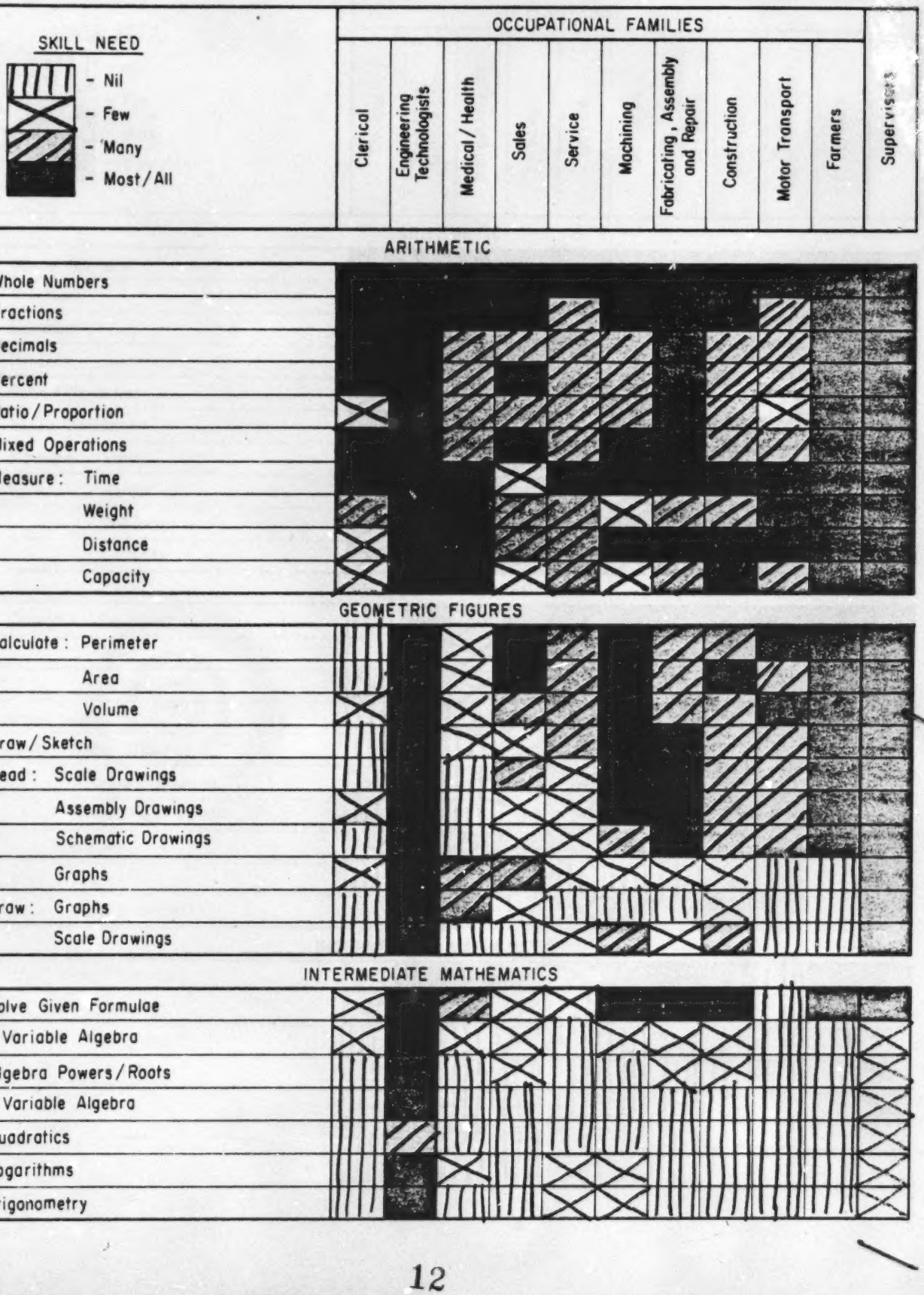
Many workers are involved with geometric figures, mensuration and drawings or sketches. Although a number have to be able to read graphs such as bar, circle and line, few ever draw graphs. Euclidean, vector and analytic geometry are rarely if ever needed.

Although the technologists require some elementary algebraic and trigonometric abilities, these skills are rarely required by most other workers. Algebra, when needed, is usually at the one variable level and the formula is generally provided to the workers. Rarely are workers required to write "open algebraic sentences"; the formula is usually provided in the form where the unknown to be determined is on the left of the equals sign and the workers only have to insert the measurement figures and carry out a simple arithmetic operation. Tables are generally provided in lieu of allowing the workers to carry out esoteric mathematics operations. For example, they "look up" the structural strength of a beam rather than determine its strength by structural calculations.

Metric data are not shown on the chart because the data base is continually changing through government regulations and industry useage. Possibly the requirements for fractions will decrease correspondingly to the use of the metric system.

Mathematical competencies are not generally greater requirements in the foremen/supervisory positions and are probably NOT a significant reason why some workers are selected and promoted to supervisory status.

GENERIC MATHEMATICS



GENERIC SCIENCE SKILLS

The chart on the facing page summarizes the science requirements for 10 occupational families and for 28 supervisory occupations. The colour code indicates the ratio of occupations in which the skill topic is used by the workers (e.g., seven out of eight construction trades needing some of the skills of force, work, energy and power is indicated by a red code).

This chart is different from the mathematics, communications and reasoning charts because it represents a far larger set of behaviours. The topic of electricity, for example, represents a generalization of data from 42 separate questions. The chart actually represents the number of occupations requiring some of the skills within the topic. Farmers, for example, only need 7 of the 42 electricity topic bahaviours. It follows, therefore, that the requirements for science are even less than indicated by the colour codes.

Science skills are by far the most occupationally variable of all generic skills thus far examined. Some workers need extensive skills in certain science topics — others need only a basic understanding of a few terms in these topics.

The need for physics topics are most heavily concentrated in the craft trades, technologists and farmers.

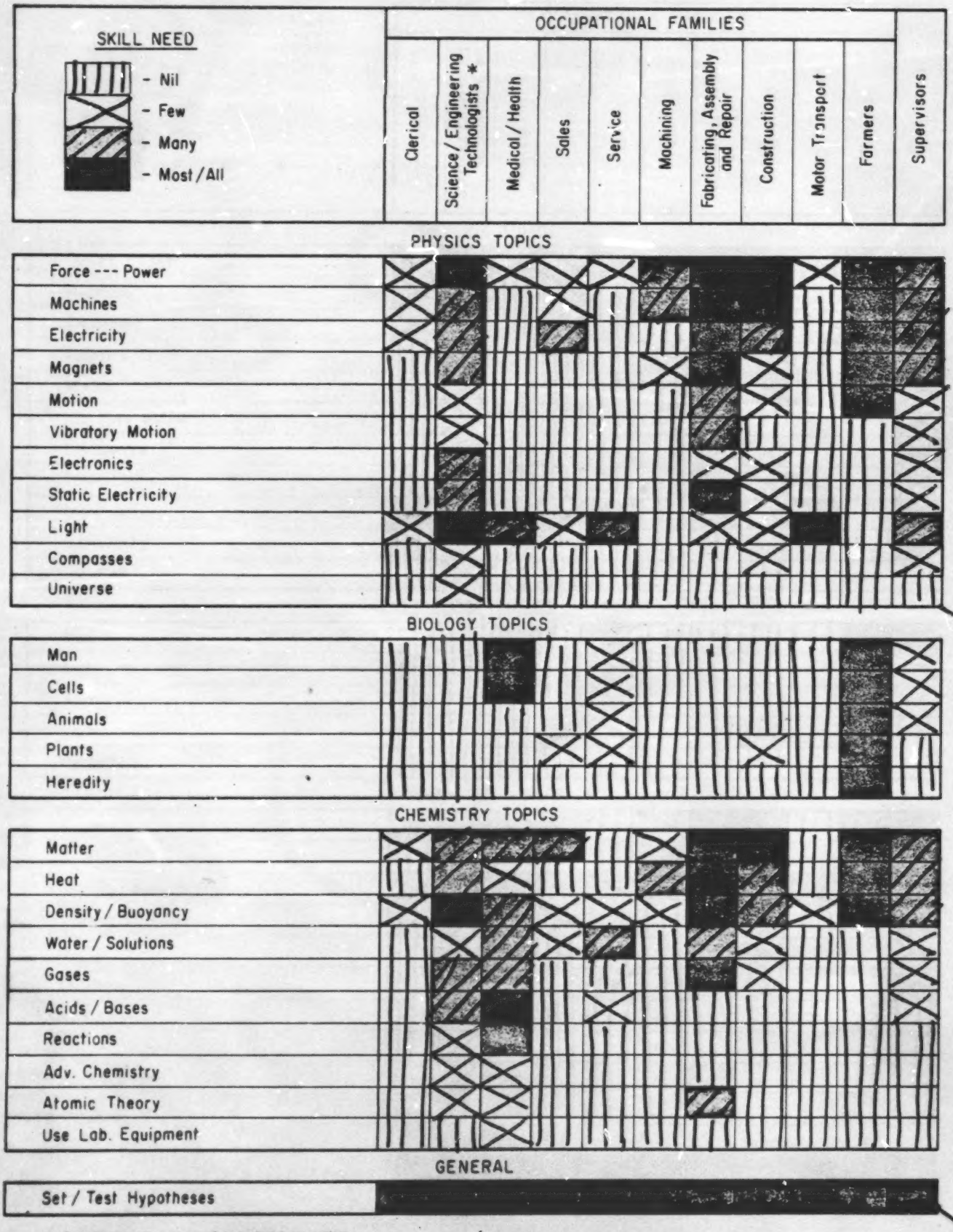
Biology requirements are heavily concentrated in two families. Medical/health occupations need the topics of cells and man. Farmers need the topics of animals, plants and heredity and have a few needs in humans and cells.

With the exception of the Medical Laboratory Technician and the technologists none of the occupations sampled need more than a very basic level of chemistry knowledge. Even the workers in the above occupations only need a small percentage of the 203 separate skills examined in the chemistry topic.

Workers in all occupations need the ability to solve problems using a scientific method. They are required to identify problems, to collect data about the problems, to propose methods to solve or resolve the problems and to test proposed methods. It is obvious that these needs are not being met by the superficial treatment of only listing or defining the steps of the scientific method or of defining words like hypothesis.

In only three cases are supervisory science skills significantly higher than the occupation being supervised. In most cases the requirements are about the same or less. Science skill and knowledge is probably NOT a significant reason why some workers are selected and promoted to supervisory status.

GENERIC SCIENCE



* Data from another survey of technologist occupations carried out by the Province of Ontario are included.

GENERIC REASONING SKILLS

The chart on the facing page summarizes the reasoning skills for 10 occupational families and for 28 supervisory occupations. The colour code indicates the ratio of occupations in which the skill is used by the workers (e.g., three out of five sales occupations needing the skill of estimating costs is indicated by an orange code).

Reasoning or "Thinking on the Job" seems to be a set of behaviours which pervades all occupations and probably includes many more skills than have thus far been identified. No attempt has yet been made within these studies to identify occupational requirements for concepts such as inductive/deductive reasoning; for synthesizing; for evaluating or for convergent and divergent thinking.

The ability to estimate measurements and costs are certainly significant requirements. All occupations use at least some of the estimating skills.

It is interesting that more workers are involved in sorting objects than in sorting data. This sorting involves, in many cases, the use of judgements or evaluative opinions, as is the case in sorting lumber by grades. Ranking and rating behaviours, although not shown on the chart, also appear to be extensively required. Over half of the occupations are involved in developing classification systems for reasons such as filing and warehousing.

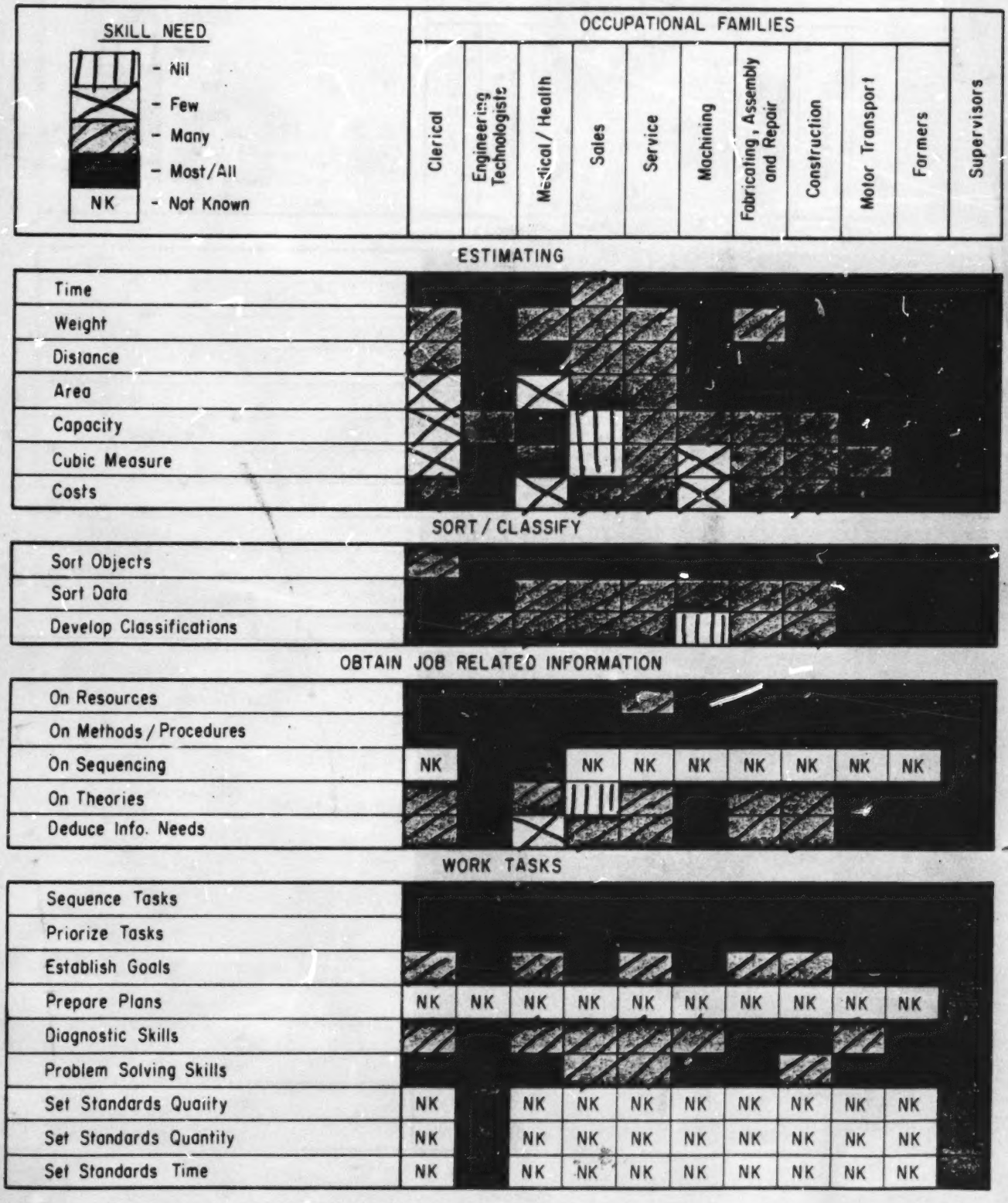
All workers are required to find out job-related information, usually by looking it up in a reference or by asking fellow workers. The earlier survey instrument did not include a question on obtaining sequencing information, as indicated by NK (not known), but it is considered probable that high responses would have been obtained had the question been asked.

The various types of skills generalized under the heading "Work Tasks" also indicate significant needs.

It can be argued, and has been, that those reasoning competencies are developed through the subject disciplines. Mathematics teachers have rationalized that the ability to think through computational problems, algebraic processes, and analytical geometry contribute to reasoning skills. Many science teachers believe that learning science and the scientific method help develop these skills. And, of course, reading teachers often argue that the abilities of analyzing sentences and developing an understanding of the underlying intent of authors and poets are helpful. Probably they are right. Yet work problems are unlike mathematics: there may be many correct answers, and absolute criteria to test the resulting answer is not usually available; they are unlike science experiments because decisions must often be made without all data being available; and they are unlike evaluative reading skills because workers are expected to follow orders rather than to judge the underlying reason behind the instructions. Perhaps reasoning skills might be more effectively learned as a separate subject or discipline!

Supervisors responded very heavily to all these reasoning behaviours. It is considered that workers who display clear logical thinking abilities are likely to be selected and promoted to supervisory status.

GENERIC REASONING



CORE CLUSTERS

The core cluster for the non-supervisory occupations was derived by examining the percentage of occupations which require each skill. As a matter of judgement it was decided that all skills used by 75% or more of the occupations surveyed would be deemed to be a core requirement. The core skills thus identified are shown below.

SKILL AREAS

MATHEMATICS

1. Read, write, and count whole numbers.
2. Add and subtract whole numbers.
3. Multiply and divide whole numbers.
4. Solve word problems with whole numbers.
5. Round off whole numbers.
6. Read and write fractions.
7. Add and subtract fractions.
8. Multiply and divide fractions.
9. Solve word problems with fractions.
10. Compute dollars and cents.
11. Read, write, and round off decimals.
12. Multiply and divide decimals.
13. Add and subtract decimals.
14. Solve word problems with decimals.
15. Read and write percents.
16. Compute percentage.
17. Determine equivalents.
18. Know order of operations.
19. Solve word problems (mixed operations).
20. Do quick calculations.
21. Compute averages.
22. Read graduated scales.
23. Perform operations with time.
24. Operate calculator.

COMMUNICATIONS

1. Know plurals.
2. Know prefixes and suffixes.
3. Contractions and abbreviations.
4. Use dictionary.
5. Synonyms, antonyms, and homonyms.
6. Meaning from context.
7. Use books.
8. Comprehend oral communication literally.
9. Interpret oral communication.
10. Pronouce words correctly.
11. Use good diction and word choice.
12. Speak fluently.
13. Organize ideas while speaking.
14. Ask the six-W questions.
15. Give directions or information.
16. Use the telephone.
17. Literal comprehension of reading.
18. Interpretive comprehension of reading.
19. Read forms.
20. Read notes, letters, memos.
21. Read charts and tabies.
22. Read manuals.
23. Write phrases on forms.
24. Write sentences on forms.
25. Write sentences.
26. Write short notes.
27. Take notes.

INTERPERSONAL

1. Attend physically.
2. Attend cognitively.
3. React to others.
4. Elementary one-to-one conversation.
5. Task-focused conversation.
6. Express point of view.
7. Personable conversation.
8. Participate in group discussion.
9. Respond to information or directions.
10. Give instruction.
11. Demonstrate.
12. Monitor
13. Give directions.

REASONING

1. Obtain information about tasks, materials, and equipment.
2. Obtain information about methods and procedures.
3. Obtain information about sequence.
4. Obtain other job related information.
5. Recall theories or principles.
6. Sort objects.
7. Estimate time.
8. Estimate weight.
9. Estimate distance.
10. Sequence tasks.
11. Establish task priorities.
12. Set goals.
13. Determine activities to reach goals.
14. Decide about alternatives.
15. Set criteria.
16. Set priorities.
17. Analyse situation.
18. Make deductions.
19. See cause and effect relationships.
20. Identify possible problems.
21. Set priorities in terms of diagnosis.
22. Explore possible methods.
23. Ask probing questions.
24. Use senses.
25. Determine relevant information for problem solving.
26. Arrive at alternative statements.
27. Select statement.
28. Determine alternative solutions.
29. Select alternative.
30. Update plans.

NON-CORE SKILLS

SKILL AREAS

MATHEMATICS	COMMUNICATIONS	INTERPERSONAL	REASONING
25. Compute ratios.	28. Evaluative comprehension in listening.	14. Attend covertly or unobtrusively.	31. Sort data.
26. Compute proportions.	29. Evaluative comprehension in reading.	15. Persuasive conversation.	32. Rate objects.
27. Compute rate.	30. Write paragraphs on forms.	16. Prepare group discussion.	33. Rank objects.
28. Compute principal.	31. Write paragraphs.	17. Present information or directions to group.	34. Develop classifications.
29. Measure weight.	32. Write form letters.	18. Lead group discussion.	35. Estimate area.
30. Measure distance.	33. Write single paragraph letters.	19. Maintain groups.	36. Estimate capacity.
31. Measure capacity.	34. Write internal memos.	20. Prepare oral presentation.	37. Estimate cubic measures.
32. Know geometric forms and figures.	35. Write business letters.	21. Give factual information in oral presentation.	38. Estimate costs.
33. Computation on angles.	36. Write information reports.	22. Get attention and response to oral presentation.	39. Plan and coordinate activities and sequences.
34. Draw/sketch geometric forms and figures.	37. Write recommendation reports.	23. Give a conceptual oral presentation.	40. Outline plans.
35. Compute perimeters.	38. Write technical reports.	24. Give a persuasive oral presentation.	41. Identify resources.
36. Compute areas.		25. Get reaction to oral presentation.	42. Estimate resources.
37. Compute volumes.		26. Establish training program.	43. Determine critical activities.
38. Read graphs.		27. Evaluate instructional communication.	44. Make a detailed plan.
39. Read scale drawings.		28. Demonstrate to others.	45. Make resource requisitions.
40. Read assembly drawings.		29. Give praise.	46. Monitor results.
41. Read schematic drawings.		30. Give discipline.	47. Determine standards of quality.
42. Draw graphs.		31. Prepare evaluation reports.	48. Determine standards of quantity.
43. Measure from scale drawings.		32. Prepare for interview.	49. Determine standards of completion time.
44. Draw to scale.		33. Ask closed questions in interview.	50. Establish priorities of standards.
45. Solve algebraic formulas.		34. Ask open questions in interview.	51. Exercise authority and responsibility.
		35. Deal with confrontation situation.	
		36. Interview customers/clients.	
		37. Interview job applicants.	
		38. Negotiate.	

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GENERIC SKILL TRANSFERABILITY

The following charts display the communality of skill usage and the skill transferability potential.

The chart on the following page shows the occupational clusters which have approximately the same requirements in mathematics, communications, science and reasoning. It will be noted that eight of the 48 occupations have a skill profile which is not duplicated by any of the other occupations.

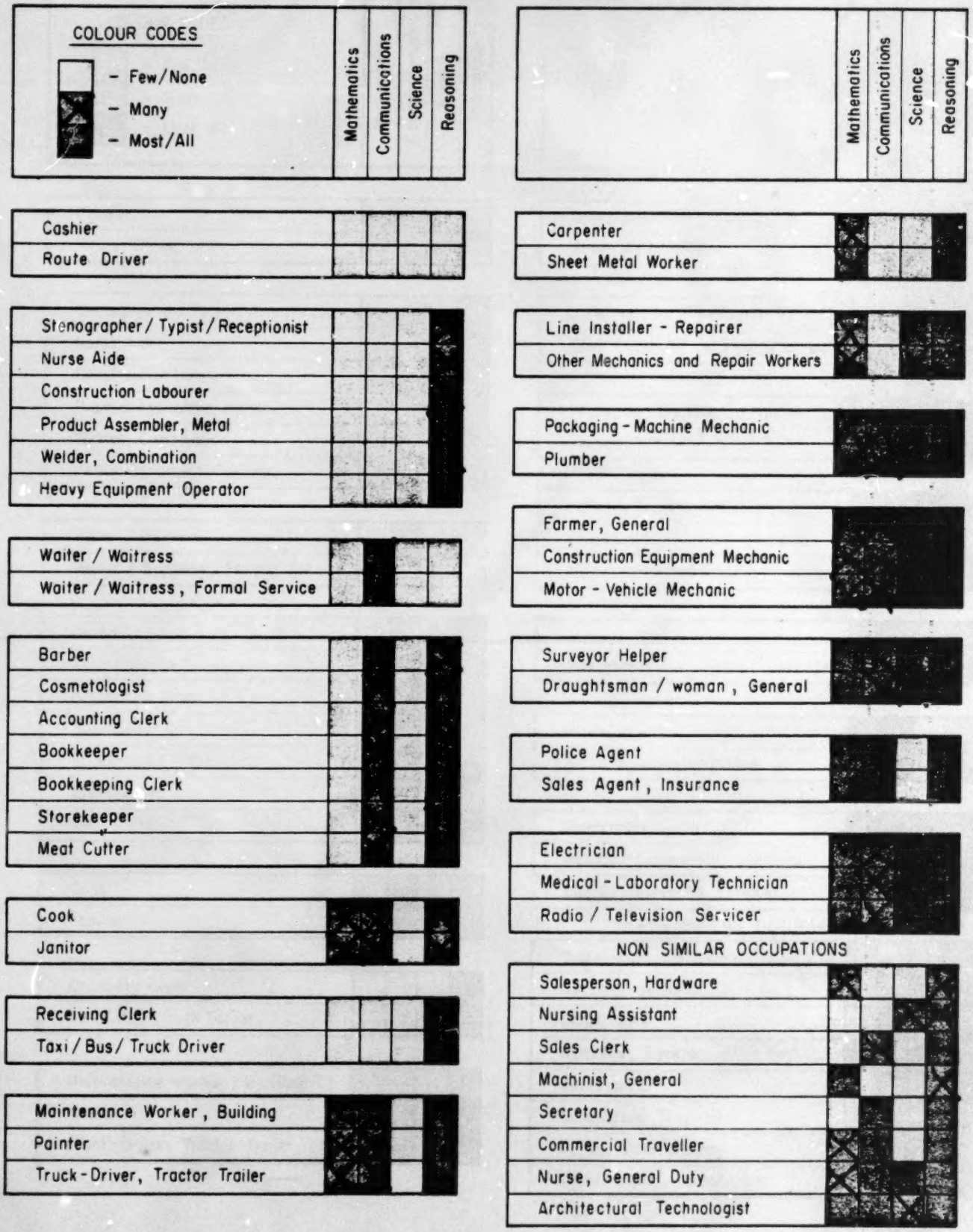
The large chart following on the next two pages indicates the skill transferability potential based on the skills which have been examined. The chart should be read from left to right and NOT top to bottom. For example, to examine the skill transfer potential of a Carpenter, locate this occupation on the vertical list and read across. It will be noted that Carpenters have high potential for transfer to 14 occupations, a medium potential for 17 occupations and a low potential for 16 occupations.

The chart was constructed by examining each occupational profile against all other profiles. If the profile exceeded or was the same as the other profile, the skill transferability is shown to be high by a red colour code. If the other occupations had a slightly higher skill profile, the transferability is shown to be medium by an orange code. If the other occupation had a significantly higher profile, the transfer is shown to be poor by a yellow code.

These charts are based on skills used by workers in these occupations. A particular worker may have more skills than needed in his/her occupation and therefore have higher transfer potential than indicated on the charts.

These charts are based only on the skills examined to date and do not account for the manipulative skills. Obviously, these skills also have to be considered for occupational transfer purposes. For example, although a Cashier is shown to have a high potential for transfer to a Route Driver, the skills of operating a vehicle would also have to be considered.

OCCUPATIONS WITH SIMILAR PROFILES OF SKILL NEEDS BEYOND THE CORE CLUSTERS



SKILL TRANSFERABILITY POTENTIAL

(READ FROM LEFT TO RIGHT – NOT TOP TO BOTTOM)